REMARKS

Claims 41-75, and 84-97 have been cancelled. Claims 1, 7, 9, and 14 have been amended. Claims 17-40 are withdrawn from consideration. Rejoinder of claims 17-40 is respectfully requested. Claim 7 is amended to correct a minor typographical error. Support for the remaining amendments is found in the existing claims and the specification as discussed below. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

Rejections under 35 U.S.C. § 112

Claims 98-109 are rejected under 35 U.S.C. § 112 as being allegedly non-enabled. The Examiner alleges that claims 98-109 are non-enabling because "the specification, while being enabling for encapsulation of pancreatic cells, does not reasonably provide enablement for all claimed cells". Further, the Examiner states that the specification in paragraph 48, describes densities for pancreatic cells only. Applicants respectfully traverse the rejection as follows.

The Examiner asserts that Applicants only describe encapsulation of "pancreatic cells" and not any other type of cell. Applicants submit that the specification provides support for encapsulating other than pancreatic cells (Examples 1-11 of the specification). For example, Example 12 and corresponding FIGs. 28- 30, describe viability post-encapsulation of mouse insulinoma cell line [FIG.28; paragraph 312], a monkey kidney cell line [FIG. 29A; paragraph 313]; and cell aggregates produced from primary liver cells (hepatocytes) from both human and mouse origin [FIG.30; paragraph 314]. All cells were successfully coated and viable post-encapsulation based on fluorescent light with FDA/EB staining. Additionally, Examples 15-20 of the specification, describe encapsulation of human or animal fibroblasts, vascular cells, or various non-tumorigenic cell lines, and genetically engineered cell lines for encapsulation (paragraphs 328-333 of the specification).

Examples 1-11 of the specification, clearly describe the encapsulation of pancreatic islets. The skilled artisan based on these descriptions can apply these teachings to other cell types without undue experimentation. Examples 12-15 of the specification show that by using substantially the same methods as that described for encapsulation of pancreatic cells, Applicants were able to encapsulate lung (Figure 29) and primary liver cells (Figure 30), and further

demonstrated that these cell types remained viable at least up to 2 weeks post-encapsulation. Therefore, it is clear that cells other than pancreatic cells are encompassed and envisioned by Applicants and that the disclosure is not limited to pancreatic cells. Other cell types are described and enabled.

The Examiner also states that the specification in paragraph 48, describes densities for pancreatic cells only. Applicants respectfully submit that the Examiner appears to be contradictory in this and the obviousness rejection below. Because at the same time the Examiner alleges that Applicants only describe densities for pancreatic cells and not other cell types, in the obviousness rejection below, the Examiner alleges that cell densities per se are within the skill of one in the art. Thus, if cell densities are allegedly "within the skill of one in the art" then Applicants written description of pancreatic cell densities is more than sufficient to provide teachings for other cell types.

However, independent of the obviousness rejection, from Examples 12-14 and Tables 3-6 of the specification, it is clear that Applicants clearly describe how to determine the "curative dose" of cells which should and can be encapsulated. Tables 3-6 lay out the parameters and provide guidance to the skilled artisan. Thus, determining cell densities of other cell types requires some experimentation but not undue experimentation.

Therefore, Applicants respectfully request that the rejections of claims 98-109 based on lack of enablement be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Claims 1-16, 76-83 and 98-109 are rejected under 35 U.S.C. §103(a) as being obviousness over WO 00/53159 (WO'159). Applicants respectfully traverse this rejection as follows.

The Examiner alleges that the claims are obvious over WO'159 because WO'159 describes the identical encapsulation coating except for the cell densities, which the Examiner alleges is within the skill of one in the art.

Applicants present the 132 Declaration of Xiaojie Yu (Yu Declaration), a co-inventor of the present application. As discussed in the Yu Declaration (item 6A), the present invention differs from the disclosure of WO'159 in that WO'159 teaches two layers, a first layer which is

typically alginate, and covered by a biocompatible second layer which is typically PEG. In contrast, the present invention teaches encapsulated cells which are conformally coated having only a single layer of uniform thickness (see also Figure 1A and Example 3 of the present specification).

In order to clearly distinguish the present invention from WO'159, claims 1, 9, and 14 have been amended to recite that the cells are conformally coated. As set forth in the definition in paragraph 0168 of the present application, a conformal coating is "a relatively thin polymer coating that conforms to the shape and size of the coated particle". The claimed invention contrasts with the teaching of WO'159 which teaches two layers, not conformal coating, in which the PEG coating is on the outer layer, not directly on the cell as in the conformally coated cells of the presently claimed invention. Further support for the amendment is found in Example 3, paragraph 0241, for example. Further description of conformal coatings is found throughout the specification. See paragraphs 0309, Example 11, paragraphs 0310-0311 which describe "using PEG conformal coatings directly on the outer surface of the carrier bead and the attached cells" (paragraph 0311), Example 12 which described "other cell types encapsulated by PEG conformal coatings" (header). Paragraph 0312 of Example 12 describes "thin conformal coatings [which] have been applied by the techniques described above for islet cell aggregates". Paragraphs 0313 and 0314 describe conformal coating of other cell types.

The advantages of conformal coating may be seen in Tables 3 and 4 on page 77 of the present specification. Table 3 shows data for islets encapsulated by microcapsules, similar to the disclosure of WO'159. Table 4 shows data for islets encapsulated as per the compositions of the claimed invention. As discussed in the attached Yu Declaration (item 6B), significantly higher cell densities may be achieved through conformal coatings. This means that for a given implant size, the number of islet cells that can be delivered is larger using conformal coatings according to the invention. This has positive implications for the potential implant recipient. For example, in the case of diabetes, by delivery of more islets/implant, the implant recipient can be free of the need for supplemental insulin injections.

The positive effect of the claimed invention is supported by the data in the present application. Using the conformally coated cells according to the claimed invention, implantation of both sub-human primate and human islets in mice provided regulation of blood glucose levels

for extended periods (see Example 5 and Figures 7-14). Positive results were also obtained with *Cynomolgus* primates. Results are summarized in paragraph 0282 and Table 2 on page 64. Treatment of diabetic baboons is described in Example 7. For example, the first diabetic baboon implanted achieved insulin independence within 17 days post implant and continued without insulin through 180 days (paragraph 0287 & Figure 22). Although WO'159 discloses that their methods may be applied to cells, including islets (see Abstract, for example), no supporting data to support this assertion is provided.

In view of Applicants' amendments and arguments, reconsideration and withdrawal of the above ground of rejection is respectfully requested.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicants are not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicants reserve the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicants have made any disclaimers or disavowals of any subject matter supported by the present application.

Co-Pending Applications of Assignee

Applicant to wishes to draw the Examiner's attention to the following co-pending applications of the present application's assignee. Entry in **Bold** is the present application.

Serial Number	Title	Filed
10/684859	**IMPLANTATION OF ENCAPSULATED BIOLOGICAL MATERIALS FOR TREATING DISEASES**	**14-Oct-2003**

11/037727	METHOD OF USING FIBRIN-BOUND ANGIOGENIC FACTORS TO STIMULATE VASCULARIZATION OF TRANSPLANT SITE OF ENCAPSULATED CELLS	18-Jan-2005
11/644606	GELS FOR ENCAPSULATION OF BIOLOGICAL MATERIALS	22-Dec-2006

CONCLUSION

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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Dated: Dec. 21, 2007

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